

—F I R S T—
ANNUAL REPORT
—OF THE—
»❧ Oregon ❧«
State Agricultural College

»EXPERIMENT STATION.«

1889.

CORVALLIS, OREGON.

PORTLAND, OREGON:
THE SCHWAB BROS. PRINTING & LITHOGRAPHING COMPANY.

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February, 1890.

To His Excellency,

SYLVESTER PENNOYER,

Governor of Oregon.

SIR:—Section 5 of the Act of Congress usually called The Hatch Experiment Station act prescribes as follows :

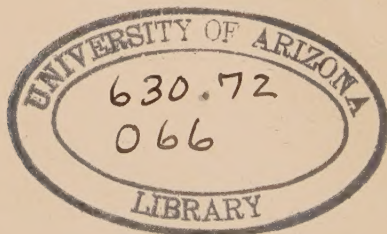
It shall be the duty of said stations, annually, on or before the first day of February, to make to the Governor of the state or territory in which it is located, a full and detailed report of its operations including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture and to the Secretary of the Treasury of the United States.

In accordance with the above we beg to submit to you a financial statement of receipts and disbursements for the fiscal year closing June 30, 1889, and, also a report of the operations of the station for the same fiscal year.

Very Respectfully,

WALLIS NASH,

Secretary of the Board of Regents.



The State Agricultural College of Oregon.

Agricultural Experiment Station Fund.

REPORT OF SPECIAL COMMITTEE

—OF THE—

BOARD OF REGENTS,

*At the Annual Board Meeting, held at Corvallis, Oregon,
on June 26, 1889.*

His Excellency,

GOVERNOR SYLVESTER PENNOYER,

Governor of Oregon.

SIR:—We, the special committee of the Board of Regents of the State Agricultural College, to whom was referred the duty of examining and reporting on the accounts of the Treasurer of the State Agricultural College who is also the Treasurer of the Hatch Experiment Station fund, beg to report as follows:

We have considered the summary of expenditures and receipts furnished us by the Treasurer, Hon. T. E. Cauthorn, a copy of which is hereto attached and we have examined the Treasurer's book and the vouchers submitted by him. We find the books well kept and correspond with the vouchers produced. And we report that the summary, attached hereto, correctly shows the receipts and payments of the said Treasurer, of and relating to the Hatch Agricultural Experiment Station fund between the 30th day of June, 1888, and this 26th day of June, 1889, and also all receipts by the said Treasurer on account of the said fund prior to the said 30th day of June, 1888.

Very respectfully,

(SIGNED), W. P. KEADY.

(SIGNED), GEO. W. McBRIDE.

(SIGNED), F. A. BAILEY.

CORVALLIS, OREGON, June 26, 1889.

43995

I hereby certify that the following is a true copy of the summary of receipts and payments referred to in the above report.

T. E. CAUTHORN,
Treasurer.

I hereby certify that the above signature is that of the Treasurer of the State Agricultural College of Oregon.

WALLIS NASH,
Secretary.



OREGON EXPERIMENTAL STATION.

Distribution of Expenditures, 1888-89.

DISTRIBUTION.	July 1, 1889 to June 15, 1889.	Estimated 15 days in June.	Total One Year.
Buildings	\$ 3,016 70	\$ 31 00	\$ 3,147 70
Chemical Apparatus and Supplies	2,438 08	106 00	2,544 08
Freight, Express and Drayage	540 80	23 00	563 80
Fencing and Drains	345 64	15 00	360 64
Greenhouse and Potting Shed	420 70	19 00	439 70
General Fittings	739 16	32 00	771 16
Incidental	298 10	10 17	308 27
Library	738 39	31 00	769 39
Labor	1,089 87	48 00	1,137 87
Labor, proportion of Students	345 95		345 95
Postage, Stationery and Telegrams	148 21	7 00	155 21
Printing and Advertising	207 70	9 00	216 70
Salaries	2,346 53	103 00	2,449 53
Supplies	962 55	42 00	1,004 55
Scientific Instruments	352 61	15 00	367 61
Tools and Machinery	367 09	17 00	384 09
Traveling Expenses	31 75	2 00	33 75
	\$ 14,389 83	\$ 610 17	\$ 15,000 00

OREGON EXPERIMENTAL STATION.

Disbursements July 1, 1888 to June 30, 1889.

AGRICULTURE.	11½ Months Actual.	Estimate ½ Month.	Total.
Books	99 03		
Instruments	300 80		
Drains	345 64		
Cases and Shelves	80 40		
Seeds and Plants	231 63		
Tools and Machinery	209 45		
Miscellaneous	737 24		
Labor	1,171 47		
Labor by Students	1,538 47		
Salaries	750 00		
Deduction by transfer, Col. Acct	5,464 13	237 57	5,701 70
Preparation of Land . 450.00			
Propor'n of Stu't Labor 1182.52	1,632 52		
HORTICULTURE AND BOTANY.	3,831 61	151 12	3,982 73
Greenhouse	420 70		
Seeds and Plants	386 02		
Scientific Apparatus	51 81		
Books	620 00		
Tools, etc., etc.	389 03		
Salaries	515 27		
Foreman	600 00		
Labor	305 20		
Miscellaneous	396 22		
CHEMISTRY.	3,684 25	160 20	3,844 45
Laboratory Fittings	226 41		
Gas Machine	432 00		
Apparatus and Chemicals	1,826 07		
Miscellaneous	575 39		
Salaries	481 26		
RECAPITULATION.	3,541 13	153 96	3,695 09
ESTIMATED.			ACTUAL.
Agriculture	3,830 00		3,982 73
Chemistry	3,070 00		3,695 09
Horticulture and Botany	4,000 00		3,844 45
Janitor	300 00		209 00
Buildings	3,000 00		3,147 55
Windmill and Pipe	200 00		121 18
	\$14,400 00		\$15,000 00

STATE AGRICULTURAL COLLEGE OF OREGON.

Agricultural Experiment Station

Board of Regents.

President.

ES. LADD Portland

Chairman Executive Com. and Treas.

E. CAUTHORN Corvallis

Secretary.

LLIS NASH Corvallis

GOV. SYLVESTER PENNOYER, ... Salem

G. W. McBRIDE, Sec'y of State Salem

E. B. McELROY, Supt. Public Instruction, ... Salem

H. E. HAYES, Master of State Grange, ... Oswego

T. APPERSON, ... Oregon City

F. A. BAILEY, ... Hillsboro

N EMMETT, ... Umpqua Ferry

W. GRIMM, ... Aurora

P. KEADY, ... Portland

K. WEATHERFORD, ... Albany

REGULATIONS

Governing that department of the State Agricultural College of Oregon, which is known as the Oregon Agricultural Experiment Station.

1. The Board of Regents has Executive control of the Station, is responsible for its expenditures ; apportions the income among the several departments of the Station ; elects the members of the working force ; orders and directs, in general terms, the nature of the scientific work to be undertaken by the working force, in its various departments, and assumes, from time to time, such other duties as may appear to the Board to be involved in, or arise from, any of the foregoing items, including the establishment of branch Stations in various parts of the state.

2. A Station Council is hereby created, consisting at first of the President of the College, the Director of the Station, and the Agriculturist, Botanist and Chemist of the Station force. Changes or additions may be made by the Board of Regents from time to time as fresh departments are added to the Station force, or re-arrangements effected therein.

The President of the College is, *ex-officio* the President of the Station Council, with the powers and functions in carrying on the business of the Council, usually attached to the office of President. He is the official representative of the Station Council in its relations with the Board of Regents.

THE FUNCTIONS AND DUTIES OF THE COUNCIL ARE :

(A) To prepare plans of scientific work and to submit same to the Board of Regents, with financial estimates for carrying the same out.

(B) When such plans shall have been approved by the Board of Regents, to apportion the same among the members of the working force, and submit to the Board periodical reports of the progress of the same.

(C) To prepare and submit to the Board, quarterly, the drafts of the Bulletins, which are by law demanded from the Experiment Sta-

and, when the same have been printed, to see to the due publication of the same.

9) To promote in all practicable ways Farmers' Institutes in various parts of the State of Oregon, held under the direction of the State Agricultural College.

The Director of the Station shall maintain a general and daily oversight of the various departments, and report the condition of the same to the Station Council.

He shall examine and certify all requisitions for purchases demanded, and all vouchers for payments needing to be made by the departments. He shall cause to be kept, and shall be responsible for the accuracy of, the Station labor accounts. He shall have charge of the Station correspondence, except in cases where the Council may apportion such correspondence among other members.

Each member of the Station force shall be independent in, and shall be responsible for, the work of his own department, receiving and carrying out the general instructions from the Station Council, and furnishing such periodical reports of the progress of work as he may from time to time be requested to supply. When supplies or outfit are needed, the particulars shall be shown on a written requisition, signed by the head of the department, and by him handed to the Director. All accounts or invoices for such supplies or outfit shall be procured by the head of the department in question, and, if correct, shall be so certified by him and handed to the Director.

STATION COUNCIL.

L. ARNOLD, A. M.,	Ex-Officio, President
GRIMM, B. S.,	Director and Agriculturist
R. LAKE, M. S.,	Botanist
HERBERT IRISH, PH. D.,	Chemist
L. WASHBURN, A. B.,	Entomologist

DIRECTOR'S REPORT.

To the Board of Control of the Oregon Experiment Station.

GENTLEMEN :—I herewith submit the first annual report of the Experiment Station for the year ending June 30, 1889.

On assuming the duties of Director of the Oregon Experiment Station, July 2, 1888, I was met with many and serious difficulties which had to be overcome before the work of experimentation could be entered upon. The Agricultural College, like the Station, was just being organized under state control, and had not yet equipped any of its departments, and could not, therefore, render that assistance which was given to the several Stations of the older states where the colleges had fully equipped departments and laboratories.

The Chemist and Horticulturist of the Station were not elected till August, 1888, and entered upon their duties the September following, under the then existing circumstances no work of an experimental nature could, at that time, be entered upon, for the reason that there was absolutely nothing to commence such work with. The work of the year is therefore largely preparatory. Rooms had to be fitted for laboratory use, supplies and apparatus ordered, and the farm put in condition, before any experimental work could be commenced.

The larger portion of the time of the Chemist has been taken up in fitting of rooms for laboratory, securing the necessary supplies and equipment, and with college duties. This department has now two conveniently arranged rooms and an office, the latter used also for weighing room, a good equipment in the way of apparatus, and is prepared to do the work of the station the coming year.

In the department of horticulture and botany, much work has been done in the way of preparation for more extended work the coming spring. A forcing house has been built at a cost of \$600, microscopes purchased, an herbarium started and such supplies purchased as were found necessary for effective work. The equipment in these departments, while yet not complete, is sufficient to enable them to enter upon the work of experimentation in certain important directions.

The farm of the State Agricultural College then consisted of only 23 acres, of which 23 acres, in very bad condition, was at our disposal for experimental purposes. For several years it had been used as common pasture, and had grown up with tar weed, ox eye daisy and May weed. The soil is a heavy clay, mostly white land, very retentive of water, and needed drainage and otherwise improving, we were attempting to use it for horticultural and agricultural purposes. It was at once taken to drain and otherwise place the land in fit condition for experimental work. About twelve acres was tile drained, the drains sixty feet apart and at the depths of four, three and two feet.

The land had received a shallow plowing during the summer and was again plowed and subsoiled during the winter and spring of 1891. As the lower and wetter portion of the farm fairly represented the average portion of the land of the Willamette Valley, commonly known as white land, it was determined to make a careful study of the effects of drainage upon it. Three sets of soil thermometers, six in each set, were placed in different parts of the field in soils of the same nature and under the same conditions, as nearly as possible, except as to drainage. Set No. 1 was placed in soil drained at a depth of four feet, set No. 2 in a soil drained at a depth of two feet and No. 3 in undrained soil. These thermometers gave the temperatures at the depths of 48 in., 36 in., 24 in., 12 in., 6 in. and 2 in. Readings were taken three times daily at the hours of 8 A. M., 12 and 4 P. M.

The work of the past year being largely preparatory, I have but little to report in the line of experimental work. What has been done since the commencement of work which must be greatly widened and extended to meet the growing needs of our state.

The following is a concise statement of the work done at the Station during the past year :

In the department of agriculture the work was confined to plot experiments. There was planted on the grounds 112 plots, of which 5 are grasses, 10 clovers, 7 forage plants, 13 wheats and 15 oats.

There are being tested on the grounds, in addition to these, 41 varieties of corn, 79 of potatoes, 24 of sorghum, 14 beets and carrots and 1 of buckwheat. A careful study of the grasses and clovers will be made, as this is a work of the greatest importance to the state. It is proposed to make a collection of native grasses, clovers and forage

plants, of which there are many in this state, and carefully test them on the grounds. This work is of special importance to the southern and eastern portions of the state, and the work will be extended into those sections as soon as time and means will permit. A careful study of the wheats will be made, by growing them on the farm under different conditions of manuring, etc., and by collecting from different sections of the state, samples grown under widely different conditions of soil and climate. We shall then undertake, by carefully conducted experiments to determine to what extent the difference of soil and climate affects its chemical composition.

This work will be undertaken by the Chemist, as also the investigation of the sugar beet, as to its value as a sugar producing plant in this state. The work already entered upon in this chemical department is some investigations of the plants of Oregon, poisonous to stock; see Bulletin No. 3. To successfully prosecute this work will require the co-operation of the farmers in different portions of the state, which we are pleased to state, is being most freely offered.

Prof. Lake has had charge of the departments of Horticulture, Botany and Entomology during the year. Experiments have been made in this department with insecticides and testing the germinative qualities of seeds, reported in Bulletin No. 2. A large variety of vegetables, small fruits and ornamental shrubs have been planted in the garden and on the grounds.

Meteorological observations have been made during the year and weekly and monthly reports made to the State Weather Bureau, at Portland, Oregon.

Three readings are taken daily from the maximum, minimum, dry and wet bulb thermometers, a record of rain fall kept and the barometric pressure taken three times daily.

It is expected that additions will soon be made to the Station force which will relieve the heads of departments from much of the routine work with which they have been so heavily burdened hitherto and so give them more time for the work of experimentation.

The Station will receive many indirect benefits from the liberal appropriation of the state of \$30,000 for the support of the college, and

the purchase of a college farm, erection of barn and purchase of
Considering what has been done during the year and is now
way, we think we can truly say that the Station is enjoying a
y growth and rapidly reaching a place of usefulness among the
rs of the state.

E. GRIMM,
Director.

ATE AGRICULTURAL COLLEGE,
CORVALLIS, January, 1890.



